

THERE IS CLAIMED:

1. A method of optimizing speech quality in a mobile radio system by using if possible a tandem free operation mode for a mobile-to-mobile call, in which method, because said tandem free operation mode is impossible in the case of a coding mode that is unauthorized for that operation mode, instead of using a tandem operation mode in this case, said tandem free operation mode is used, if possible, with an authorized coding mode, provided that said authorized coding mode is supported.
2. The method claimed in claim 1, wherein if said tandem free operation mode is established after negotiation with the aim of selecting a common coding mode for that operation mode, and said negotiation was initiated on the basis of coding modes initially selected independently for each of said mobiles, and if said coding mode initially selected for at least one of said mobiles is an unauthorized coding mode, negotiation is initiated with said unauthorized coding mode for that mobile replaced by an authorized coding mode, provided that said authorized coding mode is supported.
3. The method claimed in claim 1, wherein if said coding modes on the basis of which said negotiation was initiated match they constitute said common coding mode for said tandem free operation mode.
4. The method claimed in claim 1, wherein if said coding modes on the basis of which said negotiation was initiated do not match a common coding mode for said tandem free operation mode is selected on the basis of lists of coding modes supported, for each of said mobiles, at least one of said lists not including any unauthorized coding mode.
5. The method claimed in claim 1, wherein said system is the GSM.
6. The method claimed in claim 1, wherein one unauthorized coding mode is an adaptive coding mode.
7. The method claimed in claim 6, wherein one adaptive coding mode is the AMR mode.
8. The method claimed in claim 1, wherein one authorized coding mode is the full rate mode.
9. The method claimed in claim 1, wherein one authorized coding mode is the enhanced full rate mode.
10. The method claimed in claim 1, wherein one authorized coding mode is the half rate mode.

- 11.** A mobile radio system for implementing a method of optimizing speech quality in a mobile radio system by using if possible a tandem free operation mode for a mobile-to-mobile call, in which method, because said tandem free operation mode is impossible in the case of a coding mode that is unauthorized for that operation mode, instead of using a tandem operating mode in this case, said tandem free operation mode is used, if possible, with an authorized coding mode, provided that said authorized coding mode is supported, in which system a tandem free operation mode is used if possible for a mobile-to-mobile call, and, if said tandem free operation mode is not possible in the case of a coding mode that is unauthorized for that operation mode, it includes means for, instead of using a tandem operation mode in this case, using said tandem free operation mode, if possible, with an authorized coding mode, provided that said authorized coding mode is supported.
- 12.** The system claimed in claim 11, wherein if said tandem free operation mode is established after negotiation with the aim of selecting a common coding mode for that operation mode, if said negotiation was initiated on the basis of coding modes initially selected independently for each of said mobiles, and if said coding mode initially selected for at least one of said mobiles is an unauthorized coding mode, negotiation is initiated with said unauthorized coding mode for that mobile replaced by an authorized coding mode, provided that said authorized coding mode is supported.
- 13.** The system claimed in claim 11, wherein if said coding modes on the basis of which said negotiation was initiated match they constitute said common coding mode for said tandem free operation mode.
- 14.** The system claimed in claim 11, wherein if said coding modes on the basis of which said negotiation was initiated do not match a common coding mode for said tandem free operation mode is selected on the basis of lists of coding modes supported, for each of said mobiles, at least one of said lists not including any unauthorized coding mode.
- 15.** The system claimed in claim 11, wherein said system is the GSM.
- 16.** The system claimed in claim 11, wherein one unauthorized coding mode is an adaptive coding mode.
- 17.** The system claimed in claim 16, wherein one adaptive coding mode is the AMR mode.
- 18.** The system claimed in claim 11, wherein one authorized coding mode is the full

rate mode.

- 19.** The system claimed in claim 11, wherein one authorized coding mode is the enhanced full rate mode.
- 10.** The method claimed in claim 1, wherein one authorized coding mode is the half rate mode.

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